

WHAT IS CLAIMED IS:

1. An image processing apparatus which processes
a plurality of supplied color image signals and outputs
the processed signals to an image forming apparatus,
5 the image processing apparatus comprising:

a conversion section which converts said plurality
of supplied color image signals to a plurality of color
signals;

10 a discrimination section which discriminates
attributes of said plurality of supplied color image
signals;

20 a determination section which determines, based on
the plurality of color signals converted by the
conversion section, a plurality of color signals
15 outside a color gamut capable of image formation in the
image forming apparatus;

a processing section which changes the plurality
of color signals outside the color gamut determined by
the determination section to a plurality of color
20 signals in the color gamut of the image forming
apparatus in accordance with a discrimination result of
the discrimination section; and

25 an output section which matches the plurality of
color signals from the conversion section and the
plurality of color signals from the processing section
and delivers the matched result to the image forming
apparatus.

2. An image processing apparatus according to claim 1, wherein said conversion section converts a plurality of color image signals of red, green and blue to color signals of cyan, magenta and yellow.

5 3. An image processing apparatus according to claim 1, wherein said discrimination section discriminates whether attributes of regions, into which a whole image or screen is divided, relate to a character portion or a non-character portion.

10 4. An image processing apparatus according to claim 1, wherein said processing section performs a color gamut compression process or a clipping process.

15 5. An image processing apparatus according to claim 1, wherein said processing section differentiates parameters of a color gamut compression process or a clipping process in accordance with the discrimination result of the discrimination section.

20 6. An image processing apparatus according to claim 1, wherein said processing section performs, when the discrimination result of the discrimination section is a character portion, a process of matching a hue and effecting shift to an outermost color gamut region closer in chroma than in brightness, and performs, when
25 the discrimination result of the discrimination section is a non-character portion, a process of matching a hue and effecting shift to an outermost color gamut region

closer in luminance than in chroma.

7. An image processing apparatus which processes a plurality of supplied color image signals and outputs the processed signals to an image forming apparatus,
5 the image processing apparatus comprising:

a conversion section which converts said plurality of supplied color image signals to a plurality of color signals;

a discrimination section which discriminates
10 attributes of said plurality of supplied color image signals;

a processing section which changes a plurality of color signals outside a color gamut capable of image formation in the image forming apparatus, which are of
15 said plurality of color signals converted by the conversion section, to a plurality of color signals in the color gamut of the image forming apparatus in accordance with a discrimination result of the discrimination section; and

20 an output section which matches the plurality of color signals from the conversion section and the plurality of color signals from the processing section and delivers the matched result to the image forming apparatus.

25 8. An image processing apparatus which processes a plurality of supplied color image signals and outputs the processed signals to an image forming apparatus,

the image processing apparatus comprising:

a conversion section which converts said plurality of supplied color image signals to a plurality of color signals;

5 a discrimination section which discriminates whether attributes of said plurality of supplied color image signals are of a character portion or a non-character portion;

10 a determination section which determines, based on the plurality of color signals converted by the conversion section, a plurality of color signals outside a color gamut capable of image formation in the image forming apparatus;

15 a first processing section which performs a process to change the plurality of color signals outside the color gamut determined by the determination section to a plurality of color signals within the color gamut of the image forming apparatus, which are associated with the character portion;

20 a second processing section which performs a process to change the plurality of color signals outside the color gamut determined by the determination section to a plurality of color signals within the color gamut of the image forming apparatus, which are
25 associated with the non-character portion;

a selection section for effecting selection between the plurality of color signals processed by

the first processing section and the plurality of color signals processed by the second processing section, depending on whether the discrimination result of the discrimination section is the character portion or the non-character portion; and

an output section which matches the plurality of color signals selected by the selection section and the plurality of color signals from the conversion section and delivers the matched result to the image forming apparatus.

9. An image processing apparatus which processes a plurality of supplied color image signals and outputs the processed signals to an image forming apparatus, the image processing apparatus comprising:

a conversion section which converts said plurality of supplied color image signals to a plurality of color signals;

a discrimination section which discriminates whether attributes of regions of said plurality of supplied color image signals are of a character portion or a non-character portion;

a processing section which performs a mapping process to shift a plurality of color signals outside a color gamut capable of image formation in the image forming apparatus into the color gamut, on the basis of the plurality of color signals converted by the conversion section in accordance with a discrimination

result of the discrimination section; and

an output section which matches the plurality of color signals from the conversion section and the plurality of color signals subjected to the mapping process in the processing section, and delivers the matched result to the image forming apparatus.

10. An image processing apparatus according to claim 9, wherein said processing section performs a mapping process of preferentially matching chroma of three elements of hue, chroma and luminance, by comparing a region discriminated as the character portion by the discrimination section with a region having no character portion.

11. An image processing apparatus according to claim 9, wherein said processing section performs, when the mapping process is executed to shift a pixel position outside the color gamut capable of image formation in the image forming apparatus into the color gamut, such processing that a closest pixel position within the color gamut is calculated to be a position on an outermost color gamut region with a minimum value of a non-character region, which is expressed by

$$a_3 \geq a_1 \geq a_2, \text{ and}$$

$$\Delta E = a_1 \Delta L^2 + a_2 \Delta C^2 + a_3 \Delta H^2$$

where L is luminance, C is chroma, H is hue, and a_1 , a_2 and a_3 are weighting coefficients of the respective elements.

12. An image processing apparatus which processes a plurality of supplied color image signals and outputs the processed signals to an image forming apparatus, the image processing apparatus comprising:

5 a conversion section which converts said plurality of supplied color image signals to a plurality of color signals;

 a discrimination section which discriminates whether attributes of regions of said plurality of
10 supplied color image signals are of a character portion or a non-character portion;

 a processing section which performs a mapping process to shift a plurality of color signals outside a color gamut capable of image formation in the image
15 forming apparatus into the color gamut, on the basis of the plurality of color signals converted by the conversion section , with a priority on hue being lowered for easier discrimination among colors when a discrimination result of the discrimination section
20 is the character portion and the number of colors is small; and

 an output section which matches the plurality of color signals from the conversion section and the plurality of color signals subjected to the mapping
25 process in the processing section, and delivers the matched result to the image forming apparatus.

13. An image processing apparatus which processes

a plurality of supplied color image signals and outputs the processed signals to an image forming apparatus, the image processing apparatus comprising:

5 a conversion section which converts said plurality of supplied color image signals to a plurality of color signals;

an image processing section which subjects the plurality of color signals converted by the conversion section to high-region emphasis;

10 a discrimination section which discriminates attributes of said plurality of supplied color image signals;

20 a non-color-gamut region processing section which performs a process to change a plurality of color signals outside a color gamut capable of image formation in the image forming apparatus to a plurality of color signals within the color gamut of the image forming apparatus in accordance with a discrimination result of the discrimination section, on the basis of the plurality of color signals subjected to the high-region emphasis in the image processing section; and

25 an output section which matches the plurality of color signals from the image processing section and the plurality of color signals from the non-color-gamut region processing section, and delivers the matched result to the image forming apparatus.